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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/837,936

04/19/2001

Dmitri Loguinov

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08/23/2004

PHILIPS INTELLECTUAL PROPERTY & STANDARDS

P.O. BOX 3001

BRIARCLIFF MANOR, NY 10510

EXAMINER

PHAN, TAM T

ART UNIT

PAPER NUMBER

2144

DATE MAILED: 08/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/837,936

Applicant(s)

LOGUINOV ET AL.

Examiner

Tam (Jenny) Phan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 May 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 April 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) \*
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 03/10/2003.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

1. This application has been examined. Claims 1-26 are presented for examination.

#### *Priority*

2. No priority claims have been made.
3. The effective filing date for the subject matter defined in the pending claims in this application is 04/19/2001.

#### *Information Disclosure Statement*

4. An initialed and dated copy of Applicant's IDS form 1449, Received on 03/10/2003 (10 March 2003) is attached to the instant Office action.

#### *Drawings*

5. This application has been filed with informal drawings, which are acceptable for examination purposes only. Formal drawings will be required when the application is allowed.

#### *Claim Rejections - 35 USC § 112*

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 2, 3, 5 and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

8. The term "**best** bottleneck bandwidth" in claim 1 is a relative term which renders the claim indefinite. The term "best" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in

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the art would not be reasonably apprised of the scope of the invention. The term "**best** bottleneck bandwidth" as used here could interpret either to mean the most congested bandwidth or the least congested bandwidth and thus render the term indefinite.

9. Claim 2, 3, 5 and 10 recites the limitation "the step of filtering" in line 1 of each mentioned claim. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 102***

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 1-2, 5-6, 9-15, 18, and 21-24 are rejected under 35 U.S.C. 102(b) as being anticipated by Sisalem et al. (XP-002226884. "The Loss-Delay Based Adjustment Algorithm: A TCP-Friendly Adaptation Scheme" 1998).

12. Regarding claim 1, Sisalem disclosed a method for estimating a bottleneck bandwidth used to support estimation of the bottleneck bandwidth between a server and a client in a communication system, the method comprising the steps of: transmitting a plurality of bursts comprised of packets from said server to said client via a bottleneck link of said system; computing a set of bandwidth samples from each of said bursts received by said client; and determining a best bottleneck bandwidth from said computed bandwidth samples, for the following transmission of data packets from said server to said client (Abstract, page 2 paragraph 5, page 3 paragraph 3, page 5 section 3 paragraph 1, page 6).

13. Regarding claim 2, Sisalem disclosed a method further comprising the step of filtering for inaccurate bandwidth samples from said computed bandwidth samples by rejecting bandwidth samples having a sample life time greater than a threshold bandwidth lifetime (page 6 paragraphs 3-4).

14. Regarding claims 5 and 18, Sisalem disclosed a method further comprising the step of filtering for inaccurate bandwidth samples from said computed bandwidth samples by rejecting bandwidth samples having a retransmitted packet (page 6 paragraphs 4-5).

15. Regarding claim 6, Sisalem disclosed a method wherein the plurality of said packet bursts is transmitted at a maximum speed by said server system so that the inter-packet delay is introduced in each of said bursts (page 9 section 4.1 paragraph 1).

16. Regarding claims 9 and 21, Sisalem disclosed a method where in said new bandwidth corresponds to a minimum bandwidth of said computed bandwidth samples if a multi-channel link is deployed between said server and said client (page 8 paragraph 2-4).

17. Regarding claims 10 and 22, Sisalem disclosed a method further comprising the step of eliminating bandwidth samples having a missing packet within each of said bursts (page 6 paragraphs 4-5).

18. Regarding claim 11, Sisalem disclosed a method, wherein said bandwidth samples for each of said burst is computed based on a difference between an inter-packet spacing between the first and the last packet within each of said burst (section 3.1 paragraphs 1-2, page 6 paragraphs 2-3, page 8 paragraph 4).

19. Regarding claim 12, Sisalem disclosed a method for estimating a bottleneck bandwidth used to support congestion control between a server and a client, the method comprising the steps of: transmitting by said server through a bottleneck link a plurality of burst comprised of packets to said client at a maximum rate; computing by said client a set of bandwidth samples for each of said burst packet, said bottleneck bandwidth being a difference between an inter-packet spacing between the first and the last packet within each of said bursts; filtering said computed bandwidth samples according to predetermined criteria; and determining a new bottleneck bandwidth for the following transmission of data packets between said server and said client, wherein determination of said new bottleneck bandwidth is based on said computed bandwidth samples and said and said filtering step (Abstract, page 2 paragraph 5, page 3 paragraph 3, page 5 section 3 paragraph 1, page 6).
20. Regarding claim 13, Sisalem disclosed a method wherein the step of computing said bandwidth samples comprises the steps of: determining the start time and the end time of the reception of the first and the last packet within each of said bursts; determining the packet size of the second packet and the last packet for each of said bursts; and, computing said bandwidth samples based on a difference between the packet size of the second packet and the last packet, divided by a difference between an inter-packet spacing duration between the first and the last packet within each of said bursts (page 6 paragraphs 2-4).
21. Regarding claim 14, Sisalem disclosed a method wherein the plurality of said packet bursts is transmitted at a maximum rate by said server system so that the inter-packet delay is introduced in each of said bursts (page 9 section 4.1 paragraph 1).

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22. Regarding claim 15, Sisalem disclosed a method wherein the step of filtering said computed bandwidth samples comprises the step of rejecting bandwidth samples having a sample life time greater than a threshold bandwidth lifetime [Only packets with sequence number > SEQ are used for bandwidth calculation] (page 6 paragraphs 3-4).

23. Regarding claims 23-24, the device for estimating a bottleneck bandwidth corresponds directly to the method of claims 1-2, and thus these claims are rejected using the same rationale.

24. Since all the limitations of the claimed invention were disclosed by Sisalem, claims 1-2, 5-6, 9-15, 18, and 21-24 are rejected.

***Claim Rejections - 35 USC § 103***

25. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

26. Claims 3-4, 7-8, 16-17, 19-20, and 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sisalem et al. (XP-002226884. "The Loss-Delay Based Adjustment Algorithm: A TCP-Friendly Adaptation Scheme" 1998) in view of Berthaud et al. (U.S. Patent Number 5,815,492), hereinafter referred to as Berthaud.

27. Regarding claims 3 and 16, Sisalem disclosed a method for estimating a bottleneck bandwidth used to support estimation of the bottleneck bandwidth between a server and a client in a communication system, the method comprising the steps of: transmitting a plurality of bursts comprised of packets from said server to said client via



a bottleneck link of said system; computing a set of bandwidth samples from each of said bursts received by said client; and determining a best bottleneck bandwidth from said computed bandwidth samples, for the following transmission of data packets from said server to said client (Abstract, page 2 paragraph 5, page 3 paragraph 3, page 5 section 3 paragraph 1, page 6).

28. Sisalem further disclosed a method further comprising the step of filtering for inaccurate bandwidth samples from said computed bandwidth samples by rejecting bandwidth samples having a sample life time greater than a threshold bandwidth lifetime (page 6 paragraphs 3-4), by rejecting bandwidth samples having a retransmitted packet (page 6 paragraphs 4-5), and by eliminating bandwidth samples having a missing packet within each of said bursts (page 6 paragraphs 4-5).

29. Sisalem taught the invention substantially as claimed. However, Sisalem did not expressly teach a method further comprising the step of filtering for inaccurate bandwidth samples from said computed bandwidth samples by rejecting bandwidth samples encountering an operating system (OS) delay of said client system.

30. Sisalem suggested exploration of art and/or provided a reason to modify the method with a step of rejecting samples that might caused the estimation to be statistically unreliable (page 6 paragraphs 4-5)

31. Berthaud disclosed a method of filtering for inaccurate bandwidth samples from said computed bandwidth samples by rejecting bandwidth samples encountering an operating system (OS) delay of said client system [packets not conforming to the initially provided statistical reliable are discarded]. Clearly, packet samples encountering an

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operating system delay are statistically unreliable and therefore would be discarded from the estimation (Abstract, Figure 1, column 3 lines 8-18, column 9 lines 3-34).

32. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the method of Sisalem with the teachings of Berthaud to include a step of rejecting samples that might caused the estimation to be statistically unreliable in order to filter out noise (Abstract) since in order to successfully control traffic access, it is necessary to accurately characterize the traffic so as to provide appropriate bandwidth for carry that traffic (Berthaud, column 3 lines 8-18).

33. Regarding claims 4 and 17, Sisalem and Berthaud disclosed a method wherein the bandwidth samples encountering said OS delay is determined based on a quantity difference between an ideal burst duration prior to encountering said OS delay and an actual burst duration after encountering said OS delay (Sisalem, page 6, page 8 paragraph 4; Berthaud, Abstract, Figure 1, column 3 lines 8-18, column 9 lines 3-34).

34. Regarding claims 7 and 19, Berthaud disclosed a method wherein said new bandwidth corresponds to a median value of said computed bandwidth samples for a low speed link (column 9 lines 5-34).

35. Regarding claims 8 and 20, Berthaud disclosed a method wherein said new bandwidth corresponds to the statistical mode of said computed bandwidth samples for a high speed link (column 13 lines 46-column 14 lines 18).

36. Regarding claims 25-26, the device for estimating a bottleneck bandwidth corresponds to the method of claims 3 and 5, and thus these claims are rejected using the same rationale.

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37. Since all the limitations of the claimed invention were disclosed by the combination of Sisalem and Berthaud, claims 3-4, 7-8, 16-17, 19-20, and 25-26 are rejected.

### ***Conclusion***

38. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. Derby et al. (U.S Patent Number 5,359,593) disclosed an access control for a packet communications network includes a dynamic bandwidth updating mechanism which continuously monitors the mean bit rate of the signal source and the loss probability of the connection. These values are filtered to remove noise and then used to test whether the values fall within a pre-defined acceptable adaptation region in the mean bit rate, loss probability plane. In further accord with the present invention, these limits on the adaptation region are converted to values of effective mean burst length and mean bit rates. The measured effective mean burst length and mean bit rates are then filtered to insure that the filtered values are statistically reliable, i.e., that a sufficient number of raw measurements are involved to insure a pre-selected confidence level in the results.

b. Raisanen et al. (U.S. Patent Number 6,633,540) disclosed an advanced traffic shaper is provided for shaping real-time traffic in an IP-based network while simultaneously providing keep-alive bandwidth for best-effort traffic. The traffic shaper comprises a packet classifier coupled to receive an incoming packet from the network and to classify the incoming packet as one of a real-time

packet and a best-effort packet; a packet discarding block coupled to perform traffic shaping of the incoming packet from the packet classifier and discard the incoming packet in accordance with traffic shaping parameters.

c. Heo (U.S. Patent Number 6,233,233) disclosed an integrated services digital network (ISDN) switch capable of switching packets in each of access switching subsystems. The control unit performs functions such as general control, error detection and congestion control by using an operating system functioning a real-time disk management, memory management and time management. The control unit monitors a packet traffic to see if there is a loss of packets, function degradation or transmission delay, and, therefore, adjusts the packet traffic. Referring to the error control, the control unit discards packets which contain error.

39. Refer to the enclosed PTO-892 for details and complete listing of other pertinent prior art of record.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tam (Jenny) Phan whose telephone number is (703) 305-4665 or (571) 272-3930 (new telephone number after October 2004). The examiner can normally be reached on M-F 9:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Cuchlinski can be reached on 703-308-3873. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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August 18, 2004